

AMENDMENT

Kindly amend the application as follows.

In the Claims:

Cancel claims 1-8, 10, 12-19, 22, 23, and 30-33.

Amend claims 9, 11, 20, and 21, as follows.

9. (Three Times Amended) A method for identifying a compound that modulates a biological activity of a serotonin-gated anion channel, said method comprising the steps of:

- (a) providing a cell expressing a heterologous first nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42°C in about 50% formamide followed by a first wash at about 65°C in about 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 65°C in about 1X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions into or out of said cell in response to binding serotonin;
- (b) administering a test compound to said cell; and
- (c) assaying a modulation in current flux into or out of said cell, wherein a modulation in current flux into or out of said cell, relative to a control cell not contacted with said first nucleic acid sequence, is indicative of a compound that modulates said biological activity of said serotonin-gated anion channel.

11. (Three Times Amended) A method for characterizing a compound as being associated with a serotonin-mediated cellular response, said method comprising detecting a modulation in current flux through a substantially pure serotonin-gated anion channel having a polypeptide sequence encoded by a first nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42 °C in about 50% formamide followed by a first wash at about 65 °C in about 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 65 °C in about 1X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, when said channel is exposed to said compound, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions from one side of a membrane to the other in response to binding serotonin, wherein said modulation in current flux is indicative of said compound being associated with a serotonin-mediated cellular response.

20. (Twice Amended) A method for identifying a compound that modulates the activity of a serotonin-gated anion channel, said method comprising the steps of:

(a) exposing a transgenic nematode that over-expresses a serotonin-gated anion channel encoded by a first purified nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42 °C in about 50% formamide followed by a first wash at about 65 °C in about 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 65 °C in about 1X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence

of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions from one side of a membrane to the other in response to binding serotonin, to a test compound;

- (b) assaying the locomotion rate of said nematode; and
- (c) comparing said locomotion rate to that of a control nematode receiving no test compound, wherein a modulation in said locomotion rate indicates a compound that modulates the activity of a serotonin-gated anion channel.

21. (Twice Amended) A method for identifying a compound that modulates the activity of a serotonin-gated anion channel in a liquid locomotion assay, said method comprising the steps of:

- (a) exposing a transgenic nematode that over-expresses a serotonin-gated anion channel encoded by a first purified nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42°C in about 50% formamide followed by a first wash at about 65°C in about 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 65°C in about 1X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions from one side of a membrane to the other in response to binding serotonin, to a test compound;
- (b) quantifying the number of nematodes actively swimming after exposure to said test compound; and
- (c) comparing the number of said actively swimming nematodes to that of

control nematodes receiving no test compound, wherein a modulation in said number of actively swimming nematodes indicates a compound that modulates the activity of a serotonin-gated anion channel.